

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL R. HOFFMAN,
JAMES M. POPPLEWELL,
and JEFFREY S. BRADEN

Appeal No. 1997-3932
Application 08/435,237¹

ON BRIEF

Before BARRETT, HECKER, and LALL, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

¹ Application for patent filed May 5, 1995, entitled "Edge Connectable Metal Package," which is a continuation of Application 08/134,993, filed October 12, 1993, now abandoned, which is a continuation-in-part of Application 07/933,270, filed August 21, 1992, now abandoned.

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DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 2-12 and 15-20.

We reverse.

BACKGROUND

The invention is directed to three embodiments of an electronic package for housing semiconductor devices.

Claim 2 is reproduced below.

2. A package for encasing one or more electronic devices, comprising:

a base component having a first perimeter;

a cover component having a second perimeter of a size less than said first perimeter; and

a leadframe disposed between and bonded to the base component and the cover component, said leadframe having an external portion that extends beyond said second perimeter, terminates adjacent to said first perimeter and rigidly adheres to said base component.

The Examiner relies on the following prior art:

Butt	4,839,716	June
13, 1989		
Kaiser, Jr. et al. (Kaiser)	4,953,001	August 28,
1990		
Kovacs et al. (Kovacs)	5,268,533	December 7,
1993		
		(filed May 3,
1991)		

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Claim 8 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Kaiser.

Claims 2-7 and 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Butt and Kovacs.

Claims 9 and 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kaiser.

Claims 11, 12, 15-17, 19, and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kaiser.

We refer to the Final Rejection (Paper No. 16) and the Examiner's Answer (Paper No. 24) (pages referred to as "EA__") for a statement of the Examiner's position and to the Appeal Brief (Paper No. 22) (pages referred to as "Br__") and the Reply Brief (Paper No. 26) for a statement of Appellants' arguments thereagainst.

OPINION

Claims 2-7 and 18

Claims 2-7 and 18 stand together. Claim 7 is separately argued in case the rejection of claim 2 is not reversed.

The embodiment of claim 2 corresponds to figure 9.

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Appellants argue that neither Butt nor Kovacs teaches or suggests that the external portion of the leadframe both: (1) extends beyond the second perimeter (perimeter of the cover) and terminates adjacent to the first perimeter (base perimeter); and (2) rigidly adheres to the base (Br10). The advantage of this claimed construction is that the electronic package is edge connectable and there is virtually no possibility of external lead damage, bending, or distortion (Br9). Appellants find that the external portion of the leadframe in both references extend beyond the perimeter of the base component, is free standing, and is not rigidly adhered to the base component (Br10).

The Examiner responds to these arguments as follows
(EA5):

Butt is for example Figure 1 teaches cover 156 having a second perimeter less than a first perimeter of base 154. Leadframe 158 is shown extending beyond the second perimeter of cap 156 and terminates adjacent to the first perimeters of base 154, sealing glass 160 rigidly adheres leads 158 to base 154.

This description does not correspond to Butt. The references numeral are found in figure 7 of Butt, not figure 1. Furthermore, 154 is a flanged cup, not a base; base 156 is the base of a flanged radiation cup 154, not the

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base component 142; and, 160 is the leadframe, not the sealing glass. Thus, the Examiner's response does not make sense.

Nevertheless, we have considered both references and agree with Appellants' arguments. Kovacs is the closer of the two references to the claimed subject matter, but it clearly shows the leads 16 extending beyond the periphery of the base 6 and not rigidly adhering to the base. The Examiner has failed to establish a prima facie case of obviousness. The rejection of claim 2, and its dependent claims 3-7 and 18, is reversed.

Claims 8-10

Claims 8-10 stand together. Claims 9 and 10 stand or fall together in case the rejection of claim 8 is not reversed.

The embodiment of claim 8 corresponds to figure 12.

Appellants argue that claim 8 is not anticipated because Kaiser does not teach "a base component that is at least partially coated with an in situ dielectric layer" (Br12). Kaiser discloses a copper base coated with gold (col. 3, lines 78).

The Examiner finds (EA3) that the dielectric substrate 75 of the microstrip transmission line 72 constitutes an "in situ dielectric layer." The Examiner states that "in situ" is not limited to a process of forming (EA5).

An "in situ" process requires forming the dielectric layer directly on the base material (specification, pp. 11-12). The dielectric substrate in Kaiser is part of a microstrip transmission line that is placed on the base 66 and, thus, it is not an "in situ dielectric layer." Furthermore, because the dielectric substrate has an underlying ground plane conductor 77, the base 66 is not "coated" with the dielectric. The claimed structure of a base with an "in situ" dielectric layer is different from the structure in Kaiser. Therefore, we agree with Appellants that claim 8 is not anticipated by Kaiser. The rejection of claim 8 is reversed. The obviousness rejection of claims 9 and 10 is also reversed because only Kaiser is relied on and the Examiner has not provided any reasoning which would overcome the deficiency noted with respect to the anticipation rejection.

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Claims 11, 12, 15-17, 19, and 20

The embodiment of claim 11 corresponds to figure 13.

Appellants argue (Br15) that the circuit trace 72 of Kaiser: (1) does not extend to the perimeter of the package base; and (2) assuming that gold strip 110 is considered an extended portion of the same circuit trace extending up to the first perimeter, it does not meet the limitation for "traces directly adhered to said dielectric layer over the entire length of the circuit traces." Appellants also argue (Br16) that the dielectric layer 75 in Kaiser is not: (3) formed in situ; and (4) formed by an anodic process.

The Examiner concludes that it would have been obvious to one skilled in the art "to form said traces unilateral [sic, unitary?] and thereby extending beyond a perimeter for such [w]as well known in this art" (EA4).

While we would take official notice that it was known to extend a leadframe between a base and a cover (e.g., this is taught in Butt), we will not take official notice that it was well known to extend traces directly adhered to the dielectric layer to the perimeter because we do not know this to be a fact. What was known in the art must be

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proved. If the fact is well known, then it should be a simple matter for the Examiner to provide a reference. Thus, the Examiner has not persuaded us that Appellants' arguments as to limitations (1) and (2) are in error.

The Examiner states that Kaiser does not limit its base to any specific material. As we understand the rejection, the Examiner concludes that it would have been obvious to use common materials such as aluminum or copper to provide heat dissipation, where "said materials are known to oxidize and would therefore provide a native oxide or anodization layer" (EA4, discussing the material limitations in claim 9).

Kaiser has a gold plated copper base. Thus, it does not have an "in situ anodization dielectric layer." The microstrip transmission line 72 (comprising a dielectric substrate 75 having a ground plane conductor 77 on the bottom surface and a strip conductor 80 (circuit trace) on the top surface, i.e., a double sided circuit board) is "affixed" (col. 3, line 9) to the base. The dielectric substrate is not an "in situ anodization dielectric layer" because it is not an "in situ" layer nor an anodized

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dielectric layer. The Examiner does not appear to rely on the dielectric substrate 75 as the "in situ anodization dielectric layer," but reasons that it would have been obvious to use a base material with an anodization dielectric layer. However, we will not take official notice that such materials were commonly known in the art. Furthermore, we note that an oxide layer on aluminum or copper is not the same thing as an "anodization dielectric layer," which is a layer formed by specific chemical process. Thus, more than just a showing of an aluminum material would be required. In addition, it is not apparent that it would have been obvious to substitute an aluminum base coated with an in situ anodization dielectric layer because the microstrip transmission line depends on having the three layers of transmission line, dielectric layer, and ground plane. Accordingly, the Examiner has not persuaded us that Appellants' arguments as to limitations (3) and (4) are in error.

For the reasons stated above, we conclude that the Examiner has failed to establish a prima facie case of

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obviousness as to claim 11. The rejection of claim 11, and
its dependent claims 12, 15-17, 19, and 20, is reversed.

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CONCLUSION

The rejections of claims 2-12 and 15-20 are reversed.

REVERSED

	LEE E. BARRETT)	
	Administrative Patent Judge)	
)	
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)	BOARD OF
PATENT	STUART N. HECKER)	APPEALS
	Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
	PARSHOTAM S. LALL)	
	Administrative Patent Judge)	

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Gregory S. Rosenblatt
WIGGEN AND DANA
One Century Tower
New Haven, CT 06508-1832